New-Type Planar Field Emission Display with Superaligned Carbon Nanotube Yarn Emitter

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With the superaligned carbon nanotube yarn as emitter, we have fabricated a 16 × 16 pixel field emission display prototype by adopting screen printing and laser cutting technologies. A planar diode field emission structure has been adopted. A very sharp carbon nanotube yarn tip emitter can be formed by laser cutting. Low voltage phosphor was coated on the anode electrodes also by screen printing. With a specially designed circuit, we have demonstrated the dynamic character display with the field emission display prototype. The emitter material and fabrication technologies in this paper are both easy to scale up to large areas.